Improving NOAA's Climate Services for the Coastal Zone: A Special Competition

For FY 2011, the Climate Program Office (CPO) is holding a special cross-Program competition focused on coastal inundation at regional scales over multi-year to multi-decadal timeframes. Efforts are sought that combine observations, modeling, Earth system science, and decision support to provide coastal planners and resource managers the information they need to prepare for, and deal with, the risks of coastal flooding. The four Programs under CPO are well positioned to support a multi-disciplinary approach to providing climate services for the coastal zone, and CPO welcomes proposals that display the scope needed to deal with the breadth of coastal inundation issues.

Climate variability and change create fluctuations in global, regional, and local mean sea level. Global sea level rise is well documented over the past 100 years and it has increased significantly over recent years as a result of warming of the oceans and the melting of land-based ice masses, e.g., glaciers. The amount and rate of sea level rise varies significantly at the national and regional level as a result of local topography, regional oceanographic conditions, and multi-decadal climate phenomena, such as ENSO and the Arctic and Antarctic oscillations. Sea level rise is a primary concern to coastal managers and planners because it increases the depth and extent of coastal inundation.

Coastal managers and planners currently rely on inundation maps that are based on flood probabilities developed from observation-based analyses of atmospheric conditions (temperature, wind, etc.), water level (sea level and storm surge), and topography. Observational data are often limited to the past 100 years and, thus, flood models and flood probabilities do not reflect longer-term climate variability and change or coastal system response to that variability or change. As a result, most inundation maps assume stationarity of the climate system. The limited scope of inundation analysis and maps constrains decision makers in accurately characterizing the risk of coastal flooding and in planning for and managing coastal resources.

Integrated work across the four thematic areas (observations, modeling, Earth system science, and decision support) would contribute to an improved ability to address the needs of coastal decision makers by providing tools that better reflect an understanding of how the expected extent of coastal inundation may change through time. The CPO encourages Letters of Intent (LOI) from teams of scientists interested in carrying out integrated research across multiple thematic areas:

- Development of a more comprehensive understanding of how coastal inundation information could be used effectively, as well as the skill level needed for various information products and decision tools to be useful to coastal planners and resource managers

- Development of a more in-depth understanding of natural variability in sea level through examination of the historical and geological records of coastal change in natural and human-influenced coastal systems
- Development of a better understanding of how direct observation (e.g., satellite altimetry analysis, in situ observation) of the evolution of ocean temperature structure can be used to quantify and project steric sea-level effects and storm intensification
- Development of modeled projections of regional sea level rise, including an understanding of how to combine these projections with local factors influencing storm surge to enable the development of localized estimates of probability of inundation with time. [Note: For this effort, regional scale means multi-state or multi-county geographic areas and not small parcels of land. Projections are meant to include multi-year to multi-decadal analyses spanning no more than 100 years.]

This CPO-funded effort is part of a larger federal effort to stimulate the development of robust national and regional capabilities to support decision-making under conditions of uncertainty with respect to the frequency and intensity of coastal inundation. LOIs with links to various federally supported regional user entities (e.g., Regionally Integrated Science and Assessment (RISA) centers, Regional Climate Centers, Coastal Services Center, DOI Landscape Conservation Cooperatives, DOI Wildlife Response Centers) are particularly encouraged. The CPO is making available $1M in FY11 for this special competition, with an aim to fund multi-year (2-3 year) proposals for up to $500K annually (up to $1.5 million over the project lifetime).

Program Contact Information

Interested applicants for all competitions are highly encouraged to submit a 2-page Letter of Intent (LOI) outlining plans for a full proposal by May 26, 2010 to Zachary.Zhao@noaa.gov <mailto:Zachary.Zhao@noaa.gov>.

For additional information please contact:

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